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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/471,829	12/23/1999	MASATSUGU HATANAKA	49481(551)	8004

21874 7590 10/28/2004

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EXAMINER

TURNER, SAMUEL A

ART UNIT	PAPER NUMBER
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2877

DATE MAILED: 10/28/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/471,829

Applicant(s)

HATANAKA ET AL.

Examiner

Samuel A. Turner

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 June 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-6 and 10-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3-6 and 10-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 28 June 2004 has been entered.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 3-6 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 3 is confusing in that it is dependent from itself. Claims 4-6 which depend from claim 3 inherent this problem. For purposes of this action claim 3 will be considered to depend from claim 1.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

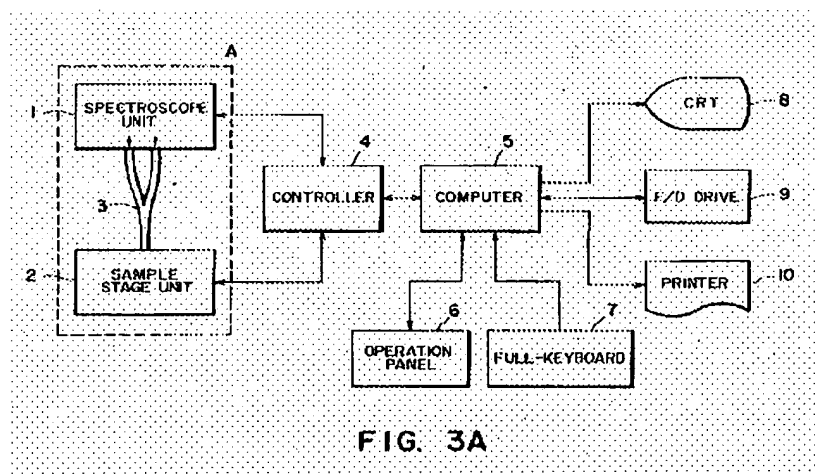
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(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

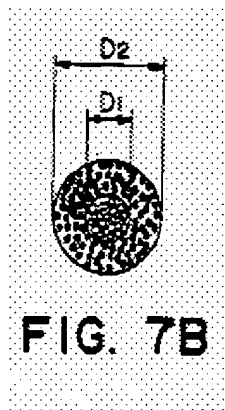
(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1 and 19 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Ban et al(4,787,749).

Ban et al teach a film thickness system comprising a light source(1a), at least one input and one output optical fiber(3) normal to the thin film, detector(1c), and computer(5). See figure 3A. In figure 7B Shows the input fiber D1 and a plurality of output fibers D2 arranged around the input fiber.



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Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

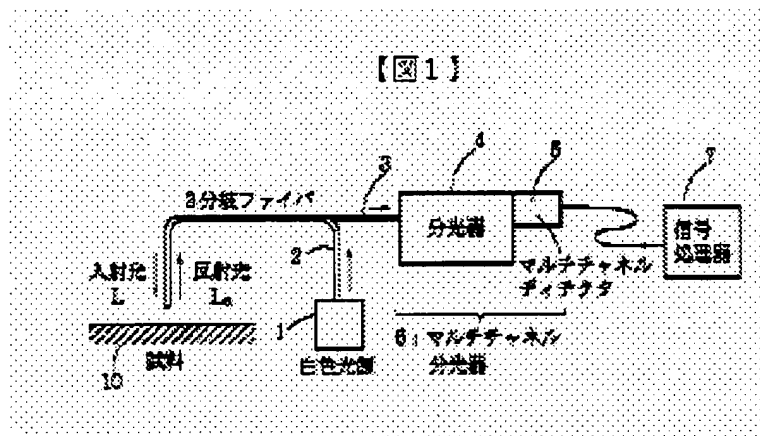
(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 10-18, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ban et al(4,787,749) in view of Shigeki et al(JP 07-294220).

Shigeki et al teach a light source(1), optical fiber(2) which is normal to the thin film, output fiber(3), spectroscope(4), detector(5), and processor(7). See figure

1.



Ban teaches solving for the thickness of a thin film by taking into account the absorption factor of the thin film. See the equations 5-10. However neither Ban or Shigeki teach the use of a robotic hand or relative location of the light receiving unit in regard to the outlet of the gate valve, or the specific equations claimed.

With regard to claims 10 and 20, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the Ban apparatus by placing the spectroscope between the output fibers and detector, as taught by Shigeki, instead of between the source and input fiber. This is a simple rearrangement of parts which would produce an equivalent result, the dividing the output according to intensity of each wavelength.

With regard to claim 18, it would have been obvious to one of ordinary skill in the art at the time the invention was made to locate the light receiving unit in any operable position since it has been held that rearranging parts of an invention involves only routine skill in the art. In re Japikse, 86 USPQ 70.

As to the robot hand of claim 17, substrates are made in a clean room and not touched by human hands. The wafer is moved between deposition, exposure, and measurement by a conveyer such as a mechanical or robot arm.

With regard to claims 11, and 14; it would have been obvious to one of ordinary skill in the art at the time the invention was made derive the claimed equations from the basic properties of the light and the film properties as found in the Ban equations.

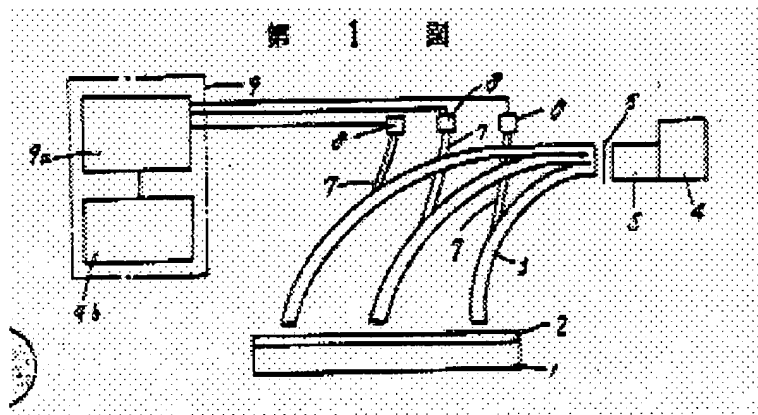
With regard to claims 13, and 16 would have been obvious to one of ordinary skill in the art at the time the invention was made locate the light receiving unit in any operable position since it has been held that rearranging parts of an invention involves only routine skill in the art. In re Japikse, 86 USPQ 70.

As to the robot hand of claims 12 and 15, substrates are made in a clean room and not touched by human hands. The wafer is moved between deposition, exposure, and measurement by a conveyer such as a mechanical or robot arm.

Claims 3-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ban et al(4,787,749) and Shigeki et al(JP 07-294220) as applied to claim s 10, 17, 18, and 20 above, and further in view of Aritoshi(JP 61-165608).

Ban teaches solving for the thickness of a thin film by taking into account the absorption factor of the thin film. See the equations 5-10. However, neither Ban or Shigeki teach a plurality of fiber input/outputs at different points on the sample.

Aritoshi teaches a thin film thickness system comprising a light source(4), spectroscop(5), a chopper(6), a plurality of input(3) and output fibers(7), a plurality of photodetectors(8), a data buffer(9a) which acts as a controller to transfer each wavelength successively, and a computing device(9b). See figure 1.



With regard to claims 3 and 4, it would have been obvious to one of ordinary skill in the art at the time the invention was made to further modify the Ban apparatus by using a plurality of fibers in order to measure film thickness at all desired points on the substrate. The means for selecting which output point to process would have been a mere matter of choice between functional equivalents such as the data buffer of Aritoshi, electrically gating each detector, or shuttering the input or output light, the chopper(6) of Aritoshi.

With regard to claims 5 and 6, it would have been obvious to one of ordinary skill in the art at the time the invention was made derive the claimed equations from the basic properties of the light and the film properties as found in the Ban equations.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Samuel A. Turner whose phone number is **571-272-2432**.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory J. Toatley, Jr., can be reached on **571-272-2800 ext. 77**.

The fax phone number for the organization where this application or proceeding is assigned is **703-872-9306**.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see **<http://pair-direct.uspto.gov>**. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at **866-217-9197** (toll-free).

A handwritten signature in black ink, appearing to read 'Samuel A. Turner', is positioned above the printed name.

Samuel A. Turner
Primary Examiner
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